

Amendments to the Claims

1-16. (Cancelled)

17. (New) A routing device operable to selectively bridge Ethernet frames related to a Point-to-Point Protocol over Ethernet (PPPoE) connection, the routing device comprising:

a processor;

memory;

computer instructions stored in the memory and executable by the processor to perform the functions including:

receiving an Ethernet frame from a first terminal, the Ethernet frame comprising an Ether_Type field and a destination address;

storing the Ethernet frame in the memory;

locating the Ether_Type field in the Ethernet frame;

determining whether the Ether_Type field includes a discovery code or a session code identifying status of a PPPoE connection, wherein the Ether_Type field including the discovery code or the session code indicates that the Ethernet frame is related to the PPPoE connection;

in response to a determination that the Ether_Type field includes the discovery code or the session code, bridging the Ethernet frame to a second terminal engaged in the PPPoE connection, the destination address of the Ethernet frame addressing the second terminal; and

in response to a determination that that the Ether_Type field does not include the discovery code or the session code, routing the Ethernet frame to the second terminal.

18. (New) The routing device of claim 17, wherein the destination address of the Ethernet frame is a MAC sub-layer address.

19. (New) A routing device operable to selectively bridge Ethernet frames related to a Point-to-Point Protocol over Ethernet (PPPoE) connection, the routing device comprising:

a processor;

memory;

computer instructions stored in the memory and executable by the processor to perform the functions including:

receiving an Ethernet frame from a first terminal, the Ethernet frame comprising an Ether_Type field and a destination address;

locating the Ether_Type field in the Ethernet frame;

determining whether the Ether_Type field includes a discovery code or a session code identifying status of a PPPoE connection, wherein the Ether_Type field including the discovery code or the session code indicates that the Ethernet frame is related to the PPPoE connection;

in response to a determination that the Ether_Type field includes the discovery code, (i) storing the destination address in the memory and (ii) bridging the Ethernet frame to a second terminal engaged in the PPPoE connection, the destination address of the Ethernet frame addressing the second terminal; and

in response to a determination that the Ether_Type field includes the session code, (i) determining whether the destination address matches a stored address in the memory and (ii) bridging the Ethernet frame to the second terminal engaged in the PPPoE

connection in response to the destination address matching the stored address, the destination address of the Ethernet frame addressing the second terminal.

20. (New) The routing device of claim 19, wherein the destination address in the Ethernet frame is a MAC sub-layer address.

21. (New) The routing device of claim 19, wherein storing the destination address in the memory comprises storing the destination address in a stored list, the stored list including destination addresses of terminals engaged in PPPoE connections, and wherein determining whether the destination address matches the stored address comprises determining whether the destination address matches an address in the stored list.

22. (New) The routing device of claim 19 further comprising computer instructions stored in the memory and executable by the processor for discarding the Ethernet frame upon determining that the destination address does not match the stored address.

23. (New) The routing device of claim 19 further comprising computer instructions stored in the memory and executable by the processor for discarding the Ethernet frame upon determining that (i) the Ether_Type field does not include the discovery code and (ii) the Ether_Type field does not include the session code.

24. (New) In a routing device, a method for selectively bridging Ethernet frames related to a Point-to-Point Protocol over Ethernet (PPPoE) connection, the method comprising:

receiving an Ethernet frame from a first terminal, the Ethernet frame comprising an Ether_Type field and a destination address;

storing the Ethernet frame in the memory;

locating the Ether_Type field in the Ethernet frame;

determining whether the Ether_Type field includes a discovery code or a session code identifying status of a PPPoE connection, wherein the Ether_Type field including the discovery code or the session code indicates that the Ethernet frame is related to the PPPoE connection;

in response to a determination that the Ether_Type field includes the discovery code or the session code, bridging the Ethernet frame to a second terminal engaged in the PPPoE connection, the destination address of the Ethernet frame addressing the second terminal; and

in response to a determination that that the Ether_Type field does not include the discovery code or the session code, routing the Ethernet frame to the second terminal.

25. (New) In a routing device, a method for selectively bridging Ethernet frames related to a Point-to-Point Protocol over Ethernet (PPPoE) connection, the method comprising:

receiving an Ethernet frame from a first terminal, the Ethernet frame comprising an Ether_Type field and a destination address;

locating the Ether_Type field in the Ethernet frame;

determining whether the Ether_Type field includes a discovery code or a session code identifying status of a PPPoE connection, wherein the Ether_Type field including the discovery code or the session code indicates that the Ethernet frame is related to the PPPoE connection;

in response to a determination that the Ether_Type field includes the discovery code, (i) storing the destination address in the memory and (ii) bridging the Ethernet frame to a second

terminal engaged in the PPPoE connection, the destination address of the Ethernet frame addressing the second terminal; and

in response to a determination that the Ether_Type field includes the session code, (i) determining whether the destination address matches a stored address in the memory and (ii) bridging the Ethernet frame to the second terminal engaged in the PPPoE connection in response to the destination address matching the stored address, the destination address of the Ethernet frame addressing the second terminal.

26. (New) The method of claim 25, wherein the destination address in the Ethernet frame is a MAC sub-layer address.

27. (New) The method of claim 25, wherein storing the destination address in the memory comprises storing the destination address in a stored list, the stored list including destination addresses of terminals engaged in PPPoE connections, and wherein determining whether the destination address matches the stored address comprises determining whether the destination address matches an address in the stored list.

28. (New) The method of claim 25 further comprising discarding the Ethernet frame upon determining that the destination address does not match the stored address.

29. (New) The method of claim 25 further comprising discarding the Ethernet frame upon determining that (i) the Ether_Type field does not include the discovery code and (ii) the Ether_Type field does not include the session code.